The STRIPED BLISTER BEETLE *on* SOY BEANS

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THE STRIPED BLISTER BEETLE ON SOY BEANS

By J. W. Ingram, *Junior Entomologist, Division of Cereal and Forage Insects, Bureau of Entomology*

An Unwelcome Yearly Visitor

The striped blister beetles[1] appear every year in nearly all soy-bean fields in southwestern Louisiana. They are so hungry that they strip the leaves from the plants and, if the field is not very large, they come back over the same field to eat the new growth of leaves. Only very small plants are ever killed by the feeding of the beetles, although the injured plants become stunted. Since fields of soy beans in which the blister beetles have been feeding look very ragged, growers sometimes are so discouraged by the outlook for a crop that they let the beetles have the fields instead of putting up a fight to get rid of the pests.

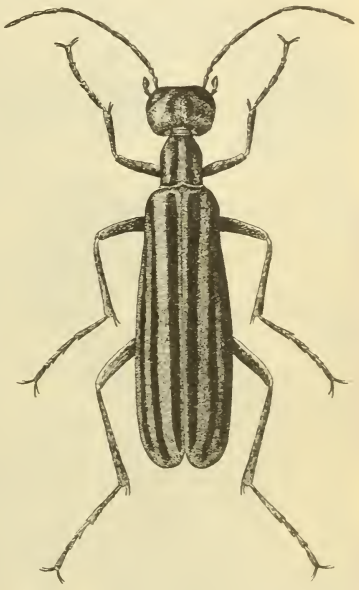

Fig. 1.—The striped blister beetle. Enlarged between 2 and 4 diameters

What the Beetle Looks Like

The striped blister beetle is a slender insect from less than a half inch to an inch in length and about four times as long as it is broad. It is light tan colored, and it has three black stripes running the full length of each wing cover. (Fig. 1.) Underneath, it is a solid brownish black. The beetle gives forth a yellowish fluid from the joints of its legs which raises a blister on the skin of some persons.

Other Plants the Beetle Eats

Besides soy beans, blister beetles of this species feed on indigo, rice pollen, lilies, pepper plants, small fine sedge (commonly called "nigger wool weed"),[2] and, lightly, on corn and rice plants. In southwestern Louisiana these beetles have caused a good deal of

[1] *Epicauta lemniscata* Fab.

[2] Family Cyperaceae.

injury to pepper plants and the growers have had to fight them to protect the crop.

Where the Beetles Come From and Where They Go

This insect spends the winter in the soil as a sleeping larva resembling a pupa or resting stage. These larvæ are found in an upright position, about 4 inches beneath the surface of the soil, in fields, especially in elevated places, sod lands, and rice-field levees.

FIG. 2.—Blister beetles feeding on soy-bean foliage

When warm spring weather comes the overwintering larva changes to a more active larval stage. In the latter part of May this larva turns to an inactive pupa, and the pupa to an adult beetle, which comes out of the ground in about eight days.

Though coming out in different places, the beetles get together in large groups in the soy-bean field and often such groups are found on grasses before the beetles have gone into the bean field. Beetles have been seen on soy beans in such large numbers that they completely covered the leafy parts of the plants, and their way of huddling close together made them look like a swarm of bees. They fly to some extent, especially at night, but they move about mostly by walking.

Although when they first appear in a field the beetles feed in a company or in several large groups, the longer they stay in the field the more widely they scatter. (Fig. 2.) If allowed to remain in the field undisturbed the beetles usually stay about three weeks or longer before disappearing. They may not appear at all in a field of soy beans during the year, or they may appear in the same field from one to four times a season. The beetles appear at the same time in soy-

bean fields throughout the section, so if found in one field they are very likely to be found in other fields in the neighborhood.

Although the beetles appear in May and June, no eggs have been found earlier than the last of July. The female beetle digs a hole in the ground usually about 1½ inches deep. At the bottom of this tunnel she makes an oval-shaped hole, and in this she lays a single batch of about 120 eggs. Blister-beetle eggs have been laid as late as October 14, and live beetles have been seen in the field as late as October 28.

The eggs hatch in about seven days into very active, slender, brown-headed, and brown-banded larvæ. These larvæ come out from the soil and scatter by crawling over the ground. Their only known food is grasshopper eggs. The young larva upon finding a pod of grasshopper eggs in the soil burrows into it and devours the eggs, changing in form twice to a more sluggish larva. When winter comes the larva burrows about 4 inches down into the soil and changes to the sleeping larval stage in which it spends the winter.

Natural Checks to the Beetle Not Much Help

Weather seems to affect this insect very little. It is doubtful if any larvae die in Louisiana as a result of the winter cold, because they are rather deep down in the soil. Some, however, may die, if the soil becomes water-soaked.

The meadowlark, the bluebird, and the scissor-tailed flycatcher have been found by the Biological Survey to feed upon the striped blister beetle. A robber fly [3] has been found feeding upon the beetle though not in large enough numbers to be of much use.

Arsenicals Only Drive the Blister Beetles Away

Calcium arsenate, Paris green, and lead arsenate have been tried as dusts and as sprays at varying strengths, but in all cases these merely drove away the beetles, which would not eat the poisoned leaves.

Sodium Fluosilicate Dust the Best Remedy

Dust the beetles with sodium fluosilicate. This has proved to be the best remedy. Any time of day will do for the dusting, and a hand duster (fig. 3) is all that you will need for the job. Dust only the area in which the beetles are located. The beetles die, not from eating the poisoned foliage, but from getting the poison on their feet and then raking their feet through the mouth to get the irritating stuff off.

Sodium fluosilicate should be put on at the rate of about 15 pounds per acre. If you dust the beetles soon after they appear in the fields—that is, before they have scattered—you will seldom need to use more than 5 pounds to kill all of the beetles in a single field. Rainfall within a few hours after dusting has little effect on the number of beetles killed.

Right after the dusting most of the beetles stop eating and within about four hours none can be found feeding, although many of the

[3] *Dizonias tristis* Walker.

beetles stay for a while on the soy-bean plants. The beetles begin to die about three hours after dusting. Most of them die within 24 hours, and within 48 hours about 99 per cent are dead.

After the dusting, many beetles hide in the soil unless it is smoothly packed, and afterwards you can find large numbers of dead beetles by turning up clods and loose soil in and near the dusted area. It is possible that a few beetles may live a day longer in the soil than elsewhere, but very few if any live ones are in the field after the third day following a good dusting.

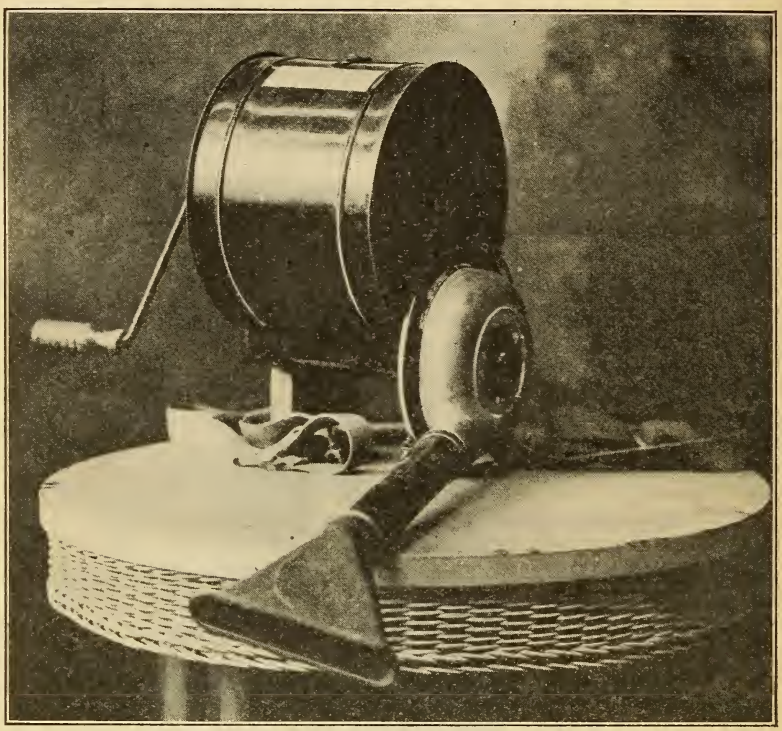

FIG. 3.—A good hand duster for dusting blister beetles

Some of the beetles when dusted leave the poisoned area, and as a result numbers of dead beetles have been found as far as 75 yards from the place where they were dusted.

Late in the growing season when the soy-bean plants are large and some leaves have been shed, some of the beetles may escape from the dusted area without coming into contact with the poison.

Some burning of the soy-bean plants has resulted from dusting with sodium fluosilicate, but only in rare cases has this burning been severe enough to kill them. The degree or extent of burning seems to depend on the quality of the dust used. In most cases no burning of the plants has resulted, and in no case has the burning been bad enough to offset the value of destroying the beetles with the dust.

Arsenic compounds when mixed with sodium fluosilicate greatly increase the burning of the dusted plants. Be sure, therefore, to

clean the dust gun thoroughly before dusting with sodium fluosilicate, especially if it has been used in applying calcium arsenate, lead arsenate, Paris green, or other arsenicals.

What Sodium Fluosilicate Is and Where to Get It

Sodium fluosilicate is from two to three times as heavy as calcium arsenate. It is a white powder produced as a by-product in the manufacture of superphosphate (acid phosphate), and is to be had from certain firms that manufacture and sell fertilizers. See your county agent or write to your agricultural experiment station to get names of such firms.

CAUTION: Your mouth and nose may feel irritated from breathing sodium fluosilicate dust, but within two or three hours after dusting this disagreeable sensation should leave you. Although no serious inconvenience has resulted from a half day's dusting, it might be well not to dust for any longer period.

Other Ways to Destroy Blister Beetles

If you can not get sodium fluosilicate, use the old method of driving the beetles into piles of straw or trenches and there burning them. Use bunches of brush tied to sticks for driving them. If you drive them into trenches, you can burn them after spraying them with crude oil or kerosene.

Another old method which you can use is to burn the beetles while they are on the plants with a torch or kerosene-soaked rag.

Although these measures are helpful, they require more work than dusting and they injure the plants. They are not so good as dusting with sodium fluosilicate.

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